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Pseudeuchromia maculifera catachroma Schultze, 1907 (Geometridae, Ennominae), a new addition to the moth fauna of Taiwan

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Abstract In the present paper, *Pseudeuchromia maculifera* (Felder & Rogenhofer) is reported from Taiwan (Lanyu Island). *P. catachroma* Schultze, originally described from Mindanao, is treated as a subspecies of *P. maculifera* and applied to the population from the Philippines (including Palawan) to Taiwan.

Key words Coremata, biogeography, geographical variation, moths of Lanyu I.

Introduction

As examining the moth collections in NTUIM and NMNS in 1994, a small unrecorded ennomine species collected from the Orchid Island of Taiwan was erroneously filed into Zygaenidae drawers. Having compared the types and references of the related taxa, the character combination of the specimens apparently agreed with that of *Pseudeuchromia maculifera* (Felder & Rogenhofer, 1875), a new addition to Geometridae of Taiwan. Furthermore, I decided to treat the Taiwanese population as the same subspecies with that of the Philippines. The morphological description, biological notes and taxonomic comments on the species are provided as follows.

Depositories of materials examined

I give below a list of abbreviations of the collections in which the materials examined are preserved or will be deposited.

BMNH: The Natural History Museum, London, England.
NTUIM: Insect Museum, Department and Institute of Plant Pathology and Entomology, National Taiwan University, Taipei, Taiwan.
RMNH: Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands.
SHYC: S. H. Yen Collection, Taiwan.
SNG: Forschungsinstitut Senckenberg der Senckenbergischen Naturforschenden Gesellschaft, Frankfurt/Main, Germany.
ZFMK: Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany.

Pseudeuchromia maculifera catachroma Schultze, 1907, **stat. n.** (Figs 1: I-J, 2: C-E, 3: A, C-D, 4)

Pseudeuchromia catachroma Schultze, 1907, *Philipp. J. Sci.* (A) **2**: 363, text-fig. 1, pl. 1, fig. 3.
Pseudeuchromia maculifera (part.), Holloway, [1994] 1993, *Malay. Nat. J.* **47**: 36, figs 38, 41.

Diagnosis of adult. Length of forewing: ♂, 13-14 mm; ♀, 14-15 mm. A small-sized, Ctenuchiidae- or Zygaenidae-like ennomine moth with black ground colouration and large yellow patches.

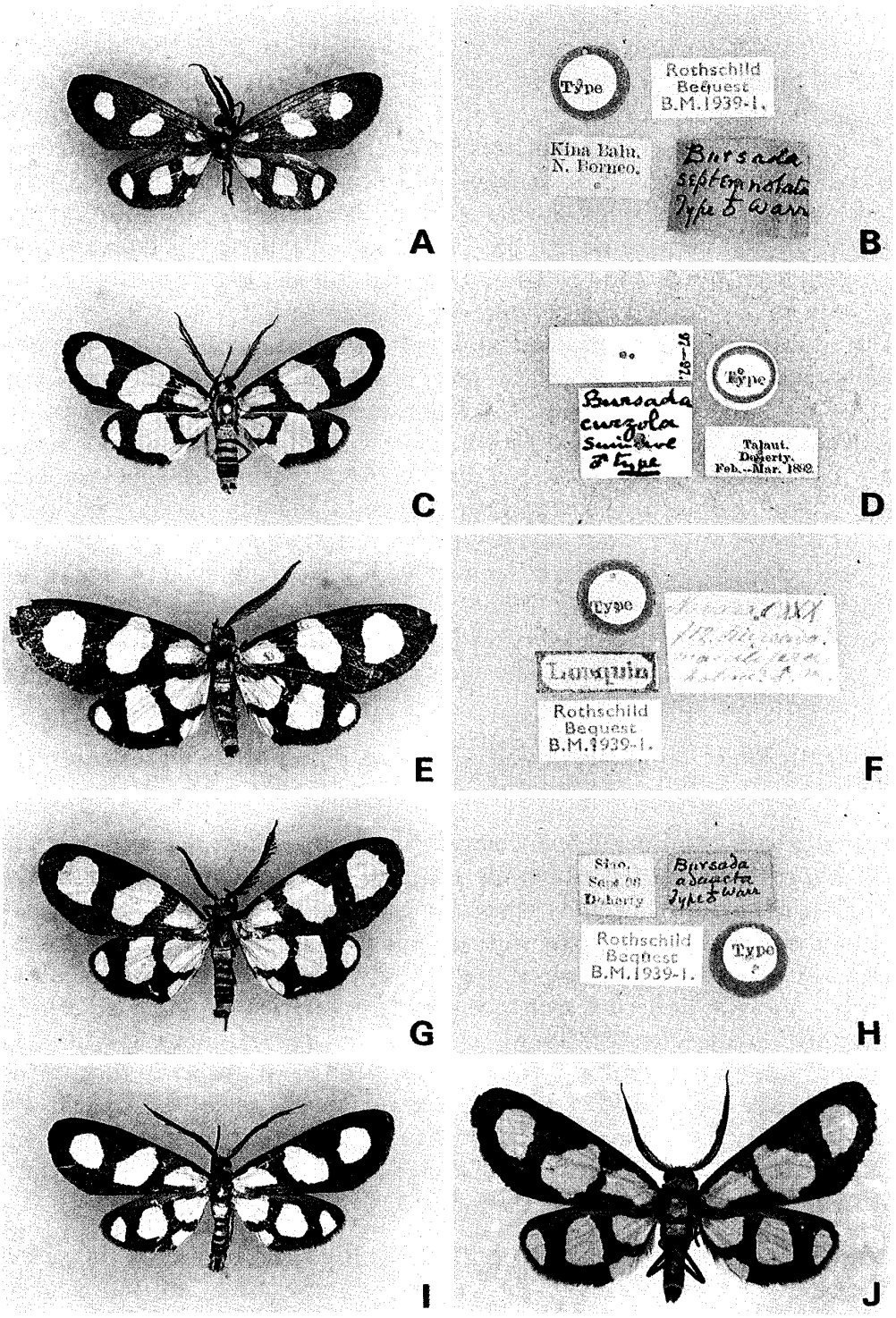

Fig. 1. Adults of *Pseudeuchromia maculifera* subspp. A. *P. m. septemnotata* (Warren). Holotype of *Bursada septemnotata*, N. Borneo (BMNH). B. *Ditto, labels*. C. *P. m curzola* (Swinhoe). Holotype of *Bursada curzola*, Talaut (BMNH). D. *Ditto*, labels. E. *P. m. maculifera* (Felder & Rogenhofer). Holotype of *Bursada maculifera*, Moluccas (BMNH). F. *Ditto*, labels. G. *P. m. adaucta* (Warren). Syntype of *Bursada adaucta*, Siao I. (BMNH). H. *Ditto*, labels. I. *P. m. catachroma* Schultze, Luzon (ZFMK). J. *Ditto*, Taiwan (Lanyu I.) (SHYC).

Male. Head : Vertex yellow, frons concealed. Labial palpus short, terminal segment with less scales, much smaller than basal part. Antennal length 7.0–7.2 mm, bipectinate ; flagellar segments 27–28 black, 0.3–0.5 mm. Proboscis developed. Chaetosemata absent. Thorax : Tegula black ; thorax black with sparse yellow scales dorsally. Forewing elongated, upperside black with 3 yellow spots, underside similar to upperside ; submarginal spot semi-orbicular with interior margin straight, located at proximal 8/9–6/9 of costa and between R_3+R_4 and CuA_1 ; medial spot slightly pentagonal with margin undulate, located at proximal 5/9–3/9 and between Sc and 3A ; basal spot slightly tetragonal with dorsal angle acute, extending from 2/9 of costa to base ; discoidal cell about 4/7 as long as wing length ; R_1 stalked with Sc at proximal 1/2 of costa ; R_2 stalked with R_1 ; R_3+R_4 stalked with R_5 ; CuA_2 emitting from discoidal cell at proximal 3/7. Hindwing short, ovate with costa nearly straight, upperside black with four yellow spots, underside similar to upperside but with an additional yellow basal patch between costa and $Sc+R_1$; submarginal spot ovate, starting from submargin to proximal 6/7 and between $Sc+R_1$ and M_3 ; medial spot wide-ovate, at proximal 5/7–3/7 and extending from $Sc+R_1$ to CuA_2 ; postmedial spot smaller, about 1/3 of dorsum ; basal spot somewhat trapezoid with costal margin slightly concave, ranging at proximal 2/9 of costa to base ; discoidal cell about 1/2 as long as wing length ; cilia black ; vein Rs fused with M_1. Legs dark fuscous with black and yellow scales on femur. Abdomen : Aposematic, black with yellow stripes ventrally on each segment ; a yellow rectangular patch on tergites 1–2, a yellow ring present between segments 8 and 9 ; tympanal organs (Fig. 3–C) situated at base, opened ventro-laterally, ansa ridged centrally with spatulate extention laterally.

Female. Slightly larger than male in size. Antenna bipectinate with flagellars shorter, 27–28 segmented.

Male genitalia (Figs 2 : C–D). Uncus curved ventrad, apical part flattened, spatulate dorso-ventrally with short spinulae dense ventrally and long setae dorsally ; gnathos arms elongate, strongly sclerotized, broader medially, apical part acuminate, upturned laterally with a row of acute marginal spines ; tuba analis with scaphium bifurcate apically and setose dorsally, subscaphium weakly sclerotized and setose ventrally ; tegumen broad ; vinculum slender without saccus, looping down on each side to an ovate extent froming a central point of fusion with valve bases ; coremata long (*ca* 20–22 mm in maximum), eversible and hairy, enclosed within a loop of vinculum ; transtilla slender ; basal pocket of furca invested with long and straight setae, right arm vestigial, left arm relatively sclerotized, apically clubbed, a comb of robust setae present interiorly ; valva simple, elongate with apical and ventral parts densely setose, costa well sclerotized ; aedeagus shaft slender, terminating asymmetrically, apical part with several rows of serrate scobinations.

Female genitalia (Fig. 3 : D). Bursa copulatrix with corpus bursae oblong, reaching the beginning of the 6th segment ; ductus bursae strongly sclerotized and fluted, after a slight constriction broadening into a pyriform, transversely thickened zone ; lagena separated from glandula receptaculi ; ductus spiralis present ; signum distal, disc-like, with a serrate margin.

Specimens examined. Taiwan : 7 ♂ 1 ♀, Taitung Hsien (=County), Lanyu Island (= Orchid Island) (1 ♂ NMNS 2182–20523 and 1 ♀ NMNS 2182–20312 dissected), Yeongshin Farm, 6. vi. 1991, H. Y. Wang leg. (B. S. Chang Collection, NMNS) ; 1 ♂, 5. viii. 1912, collector's name unknown (NTUIM) ; 2 ♂, Yehyou Village, 7. iv. 1994, S. H. Yen leg. (SHYC) ; 1 ♂, Hontou Village, 6. iv. 1994, S. H. Yen leg. (SHYC)

Other specimens examined. *Pseudeuchromia maculifera catachroma* Schultze : Philippines,

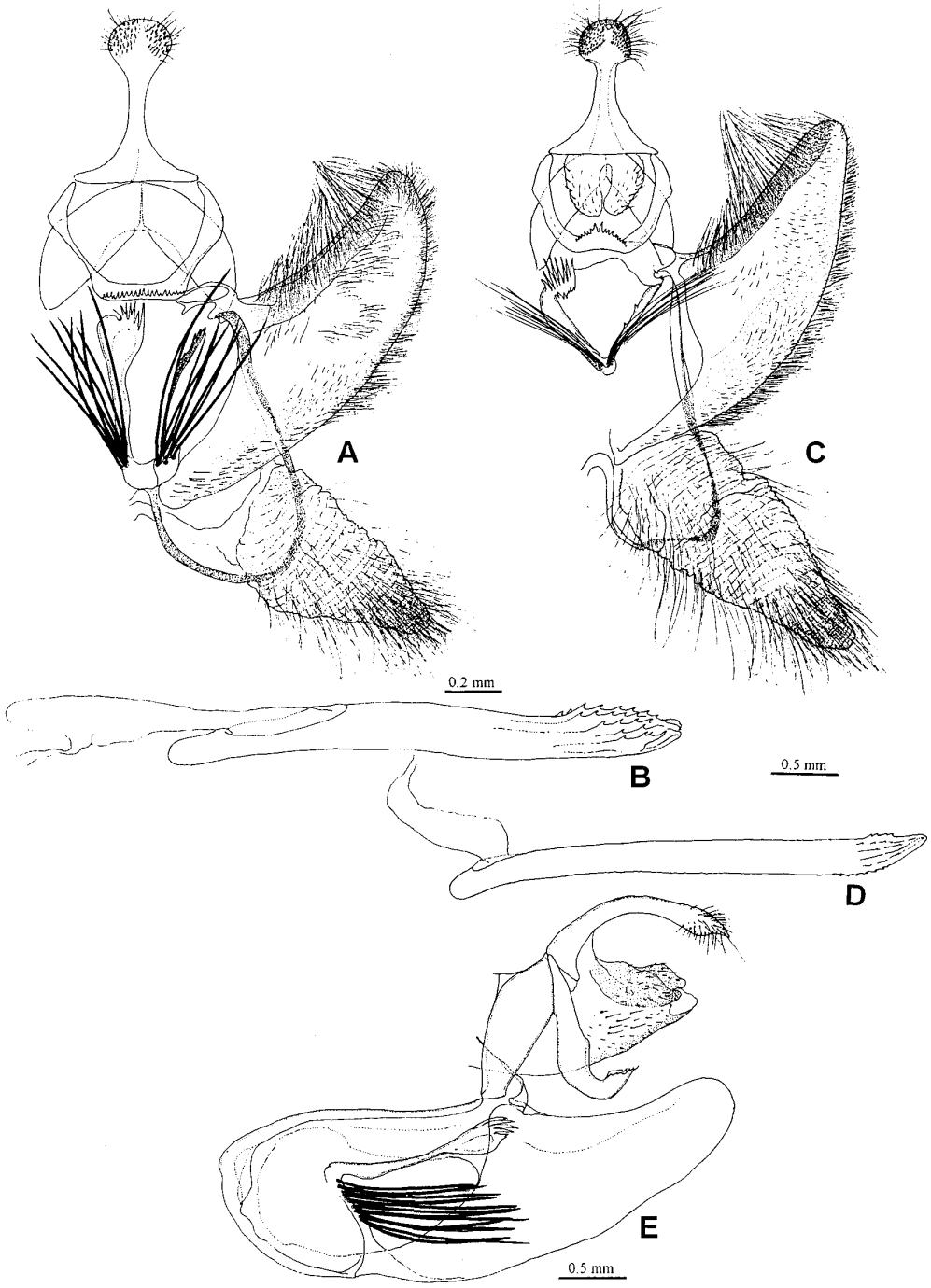

Fig. 2. Male genitalia of *Pseudeuchromia maculifera* subspp. A. *P. m. maculifera* (Felder & Rogenhofer), ventral view, Sulawesi. B. *Ditto*, aedeagus. C. *P. m. catachroma* Schultze, ventral view, Taiwan (Lanyu I.). D. *Ditto*, aedeagus. E. *Ditto*, lateral view.

3 ♂, N. Luzon, Ifugao, Banaue vie, 20 km, N. Lagawe, 22. ix. 1988, S. Relsfelder leg. (ZFMK); Quezon, vii. 1996, collector's name unknown (SHYC); Palawan, viii. 1996, collector's name unknown (SHYC). *Pseudeuchromia maculifera maculifera* (Felder & Rogenhofer): Holotype of *Bursada maculifera* ♂, Indonesia, Moluccas, collector's name unknown, left antenna missing (BMNH); 6 ♂, Sulawesi, Tenggara, Moramo Sg, Moramo, 175 m, 17. xi. 1989, R. de Jong & J. Huisman leg. (1 ♂ no. S8941 dissected) (RMNH). *Pseudeuchromia maculifera adaucta* (Warren): Syntype of *Bursada adaucta* ♀ (not ♂

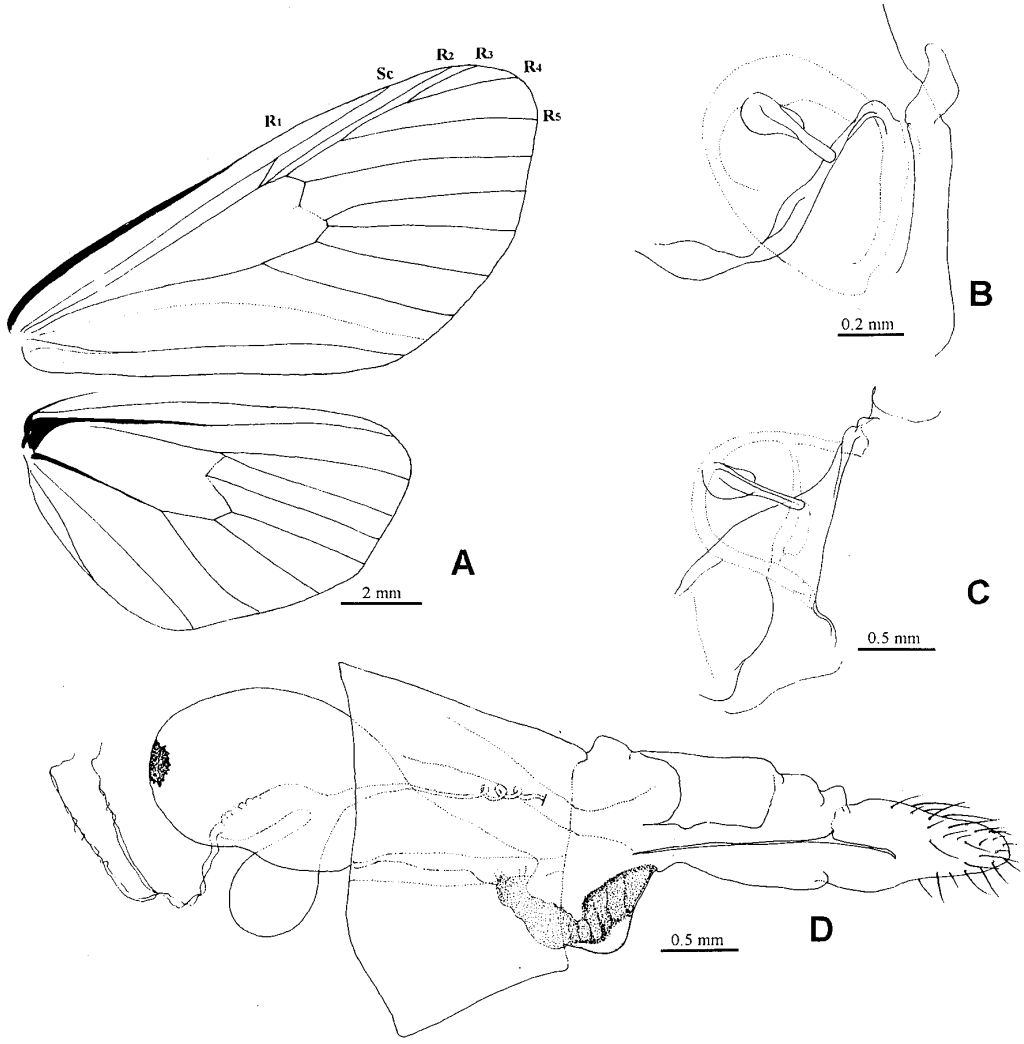

Fig. 3. A. Wing venation of *Pseudeuchromia maculifera catachroma* Schultze. B. Left tympanal organ of *P. m. maculifera* (Felder & Rogenhofer). C. *Ditto, P. m. catachroma* Schultze. D. Female genitalia of *P. m. catachroma* Schultze.

indicated by Warren 1897*b*: 240), N. Celebes, Siao Islands, ix. 1896, W. Doherty leg. (BMNH). *Pseudeuchromia maculifera curzola* (Swinhoe): Holotype of *Bursada curzola* ♂, Talaut, ii-iii, W. Doherty leg. (BMNH). *Pseudeuchromia maculifera septemnotata* (Warren): Holotype of *Bursada septemnotata* ♀, N. Borneo, Kina Balu, collector's name unknown (BMNH).

Geographical distribution. The Philippines (including Luzon, Palawan, Mindanao), Taiwan (Lanyu), new to the moth fauna of Taiwan.

Taxonomic comments. Holloway ([1994] : 36) synonymized four names into *Pseudeuchromia maculifera* and annotated that all the synonyms under *maculifera* might be applicable at subspecific level. Having examined the types in BMNH and accessory collection of the species in other museums, I tended to agree Holloway's proposal that *maculifera* is applied for Sulawesi, *curzola* (=*Bursada chrysaugina* Bastelberger, 1907 ?) for Talaut, *catachroma* for the Philippines and *septemnotata* for Borneo. In appearance, *maculifera* from Sulawesi is the largest subspecies with forewing 18-20 mm in length ; *septemnotata* has yellow patches much smaller than those of other subspecies ; *curzola* bears the largest yellow

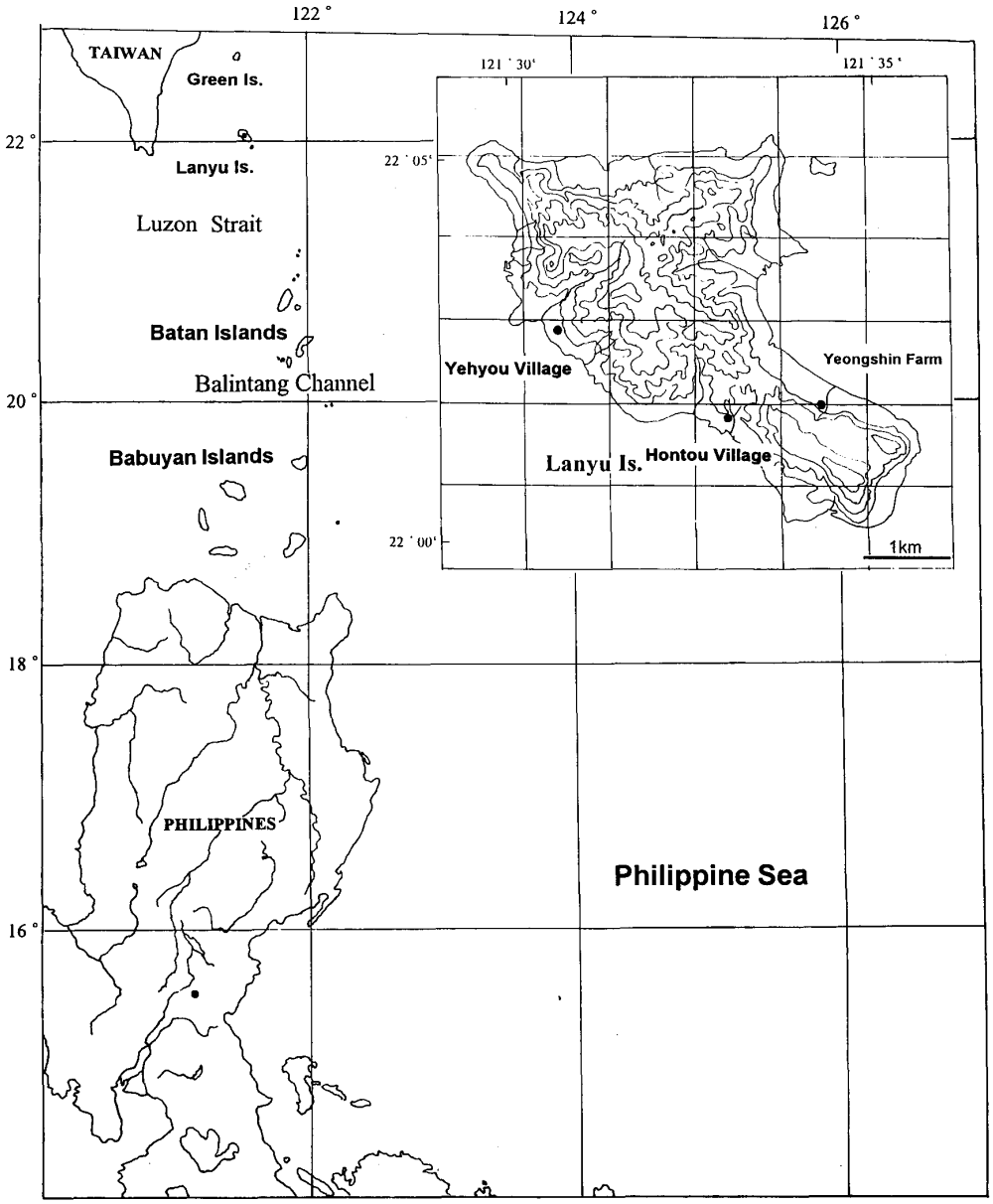

Fig. 4. Distribution of *Pseudeuchromia maculifera catachroma* Schltze from N. Luzon to Taiwan.

patches in all subspecies. A very similar species, *Bursada ampliflava* Swinhoe, was described by Semper [1896–1902] based on a unique specimen from Luzon. According to the original description, Holloway (1993) inferred that the species is possibly conspecific with *Pseudeuchromia maculifera*. However, having examined the type in the Semper Collection of SNG, I found the species may be different from *P. maculifera* in the lack of the apex yellow spot on hindwing although such difference may be subjected to the individual variation. Therefore, I do not tend to treat Semper's name until more material from the Philippines are available.

Biological notes. The subspecies *catachroma* is probably bivoltine based on the collecting data on labels. Adults are diurnal and also attracted by light trap. At Lanyu I., *Palaquium formosanum* Hayata (Sapotaceae) along the coastal forests is utilized as honey resource.

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References

Felder R. and A. F. Rogenhofer, 1874–1875. Lepidoptera. Heft IV, V. Atlas der Heterocera Sphingida-Noctuida. *Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859*. Zoologischer Theil. **2** Abtheilung (2). Pls 75–140, Erklänung 1–10, Inhalt-Verzeichnis 1–20. Wien.

Holloway, J. D., [1994]1993. The moths of Borneo: family Geometridae, subfamily Ennominae. *Malay. Nat. J.* **47** [= *The Moths of Borneo* **11**]: 1–309, 593 figs, 19 pls.

Semper, G., 1896–[1902]. Die Schmetterlinge der philippinischen Inseln. Abtheilung 2: Die Nachtfalter (Heterocera). *Reisen in Archipel der Philippinen* (2) **6**: 381–728, pls C–V, 50–66. Wiesbaden, C.W. Kreidel.

Swinhoe, C., 1902. New and little known species of Drepanulidae, Epiplemidae, Microniidae and Geometridae in the National Collection. *Trans. ent. Soc. Lond.* **1902**: 585–677.

Tremewan, W. G. 1973. A catalogue of the genus-group names of the Zygaenidae (Lepidoptera). *Bull. Br. Mus. nat. Hist.* (Ent.) **28**: 111–151.

Warren, W., 1897*a*. New genera and species of moths from the Old-World regions in the Tring Museum. *Novit. zool.* **4**: 12–130.

————, 1897*b*. New genera and species of Drepanulidae, Thyrididae, Epiplemidae, Uraniidae, and Geometridae in the Tring Museum. *Ibid.* **4**: 195–262.

摘　　要

台湾未記録のエダシャクの1種について (顔　聖紘)

台湾未記録のエダシャク亜科 *Pseudeuchromia maculifera* (Felder & Rogenhofer) をランユー島より記録した．また，フィリピンミンダナオ島より記載されていた *P. catachroma* Schultze は本種の亜種とすべきであり，パラワン島を含むフィリピン，台湾産の個体群に適用することを提唱した．

[中文摘要訳：堀江清史]

臺灣產尺蛾科之新記錄—十斑擬鹿尺蛾 (菲律賓亞種) (顏　聖紘)

本文報導臺灣蘭嶼島產枝尺蛾亞科 Ennominae 之新記錄—圓斑擬鹿尺蛾 *Pseudeuchromia maculifera* (Felder & Rogenhofer). 原本描述自菲律賓民答那峨島之十斑擬鹿尺蛾 *P. catachroma* Schultze 則被處理爲該種之亞種，作者並建議此亞種名可使用於菲律賓群島 (含巴拉望島) 至臺灣之族群.

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